## AMENDMENTS TO THE CLAIMS

41. (previously presented) An analog to digital signal conversion system comprising:

an analog to digital converter having a digital signal input line;

a fully differential reference voltage supply coupled to said analog to digital converter by means of a differential signal path, said fully differential reference voltage supply comprising:

a reference resistor adapted to exhibit a reference voltage between first and second nodes thereof in response to a reference current impressed thereupon;

a fully differential amplifier circuit having third and fourth differential signal input nodes, a common mode voltage input node, and fifth and sixth differential signal output nodes, said third and fourth differential signal input nodes coupled to said first and second nodes respectively through respective first and second capacitors, said fifth and sixth differential signal output nodes coupled to said third and fourth differential signal input nodes respectively through respective third and fourth capacitors;

a source of common mode voltage adapted to be switchingly coupled to both said third and fourth differential signal input nodes;

first and second switching devices adapted to switchingly shunt said third and fourth capacitors respectively; and

a third switching device adapted to switchingly couple said first and second nodes.

42. (previously presented) An analog to digital signal conversion system as defined in claim 41 further comprising a processing unit coupled to said analog to digital converter through said digital signal input line.

43. (previously presented) An audio processing system, comprising:

an analog audio input device; and

analog to digital converter coupled to said analog to digital converter for converting analog signals to digital signals comprising:

a conversion circuit having an analog signal input, first, second, third, and fourth reference signal inputs, and a digital signal output; and

a reference voltage circuit having a power supply input, a digital voltage setting input, and first, second, third, and fourth reference signal outputs respectively coupled to said first, second, third, and fourth reference signal inputs, said reference voltage circuit including a reference resistor coupled through a sample and hold circuit to fifth and sixth differential inputs of a fully differential amplifier with seventh and eighth differential outputs alternately switchingly coupled to said first, second, third, and fourth reference signal outputs.

44. (previously presented) An audio processing system as defined in claim 43, further comprising a processor coupled to said analog to digital converter for processing signals received from said analog to digital converter.

45. (previously presented) An audio processing system as defined in claim 43, wherein said analog audio input device is a microphone.

46. (previously presented) A signal processing system, comprising:

an analog audio input device for providing analog audio signals; and

an analog to digital converter for converting said analog audio signals to digital output signals, said analog to digital converter comprising:

a conversion circuit having an analog signal input, first, second, third, and fourth reference signal inputs, and a digital signal output; and

a reference voltage circuit having a power supply input, a digital voltage setting input, and first, second, third, and fourth reference signal outputs respectively coupled to said first, second, third, and fourth reference signal inputs, said reference voltage circuit including a reference resistor coupled through a sample and hold circuit to fifth and sixth differential inputs of a fully differential amplifier with seventh and eighth differential outputs alternately switchingly coupled to said first, second, third, and fourth reference signal outputs.

47. (previously presented) A signal processing system as defined in claim 46 wherein said fully differential amplifier includes first and second feedback circuits coupled between said sixth differential output and fifth differential input, and eighth differential output and seventh differential input respectively.

48. (previously presented) A signal processing system as defined in claim 46 wherein said sample and hold circuit includes first and second transistors each coupled in series with a respective switching device between a respective end of said resistor and a respective one of said fifth and sixth differential inputs.

49. (previously presented) A signal processing system as defined in claim 47 wherein said first and second feedback circuits each comprises:

a capacitor coupled in parallel with a switching device, said switching device adapted to switchingly shunt said capacitor.

50. (previously presented) A signal processing system as defined in claim 46 further comprising:

respective first and second switching devices respectively switchingly coupled between said first reference signal output and said first reference signal input and between said second reference signal output and said second reference signal input.

51. (previously presented) A signal processing system as defined in claim 46 further comprising:

respective first and second voltage dividing devices respectively switchingly coupled between said third reference signal output and said third reference signal input and between said fourth reference signal output and said fourth reference signal input.

52. (previously presented) A signal processing system as defined in claim 46, further comprising a digital data bus coupled to said analog to digital converter.

53. (previously presented) A signal processing system as defined in claim 46, further comprising a processor coupled to said digital data bus.

54. (previously presented) A signal processing system as defined in claim 46, further comprising a input / output device coupled to said digital data bus.

55. (previously presented) A signal processing system as defined in claim 46, further comprising a memory device coupled to said digital data bus.

56. (previously presented) An analog to digital converter comprising:

an input stage having an input and including a sample and hold circuit;

a plurality of analog to digital stages serially coupled with said input stage and with one another; and

a reference voltage circuit adapted to provide a reference voltage to each analog to digital stage of said plurality of analog to digital stages, the reference voltage circuit comprising:

a programmable current supply coupled in series with a resistor and an active load between a source of supply potential and a source of ground potential; and

a differential amplifier having a first differential input and a second differential input, said first differential input coupled through a first capacitor and a switching device to a first terminal of said resistor, said second differential input coupled through a second capacitor and a second switching device to a second terminal of said resistor.

57. (previously presented) An analog to digital converter as defined in claim 56, further comprising a feedback circuit between a first output of said differential amplifier and said first differential input.

58. (previously presented) An analog to digital converter as defined in claim 57, wherein said feedback circuit comprises a storage cell between said first output of said differential amplifier and said first differential input.

59. (previously presented) An analog to digital converter as defined in claim 58, wherein said feedback circuit comprises a feedback switch between said first output of said differential amplifier and said first differential input, said feedback switch being coupled in parallel to said storage cell.

60. (previously presented) A switched capacitor voltage source comprising:

a reference voltage supply including a programmable current source coupled in series with a standard resistor, said reference supply having a first terminal output disposed across said resistor;

a sampling circuit including a second terminal input coupled to said first terminal output; and

an amplifier including a third terminal input, a fourth terminal output, and first and second feedback paths coupling said fourth terminal output to said third terminal input, said fourth terminal output adapted to output a first voltage related to a second voltage impressed on said resistor by said programmable current source.

61. (previously presented) A switched capacitor voltage source as defined in claim 60 wherein an output impedance measured at said fourth terminal output is substantially lower than an impedance of said resistor.

62. (previously presented) A switched capacitor voltage source as defined in claim 60 wherein said first and second feedback paths are adapted to produce unity gain between said third terminal input and said fourth terminal output, and wherein said first voltage is related to said second voltage by a factor substantially equal to one.

63. (previously presented) A switched capacitor voltage source as defined in claim 63 wherein said first and second feedback paths each includes a respective capacitor and a respective switching device, said respective switching device being adapted to switchingly shunt said respective capacitor.

64. (previously presented) A reference voltage source circuit for an analog to digital converter comprising:

a programmable current source having a first control input and a current output;

a reference impedance device having first and second ends, said first end coupled to said current output;

a sample and hold circuit having first and second sample and hold inputs coupled to said first and second ends of said reference impedance device respectively, said sample and hold circuit having first and second sample and hold outputs; and

a amplifier circuit having first and second amplifier inputs respectively coupled to said first and second sample and hold outputs, said amplifier circuit having first and second amplifier outputs, said amplifier circuit including a feedback circuit between said amplifier output and amplifier input, wherein said feedback circuit including a first feedback input coupled to said first amplifier output, said feedback circuit including a second control input and a control output, said control output being coupled to said first control input of said programmable current source.

65. (previously presented) A reference voltage source circuit for an analog to digital converter as defined in claim 64 wherein said first control input comprises a digital control input.

66. (previously presented) A reference voltage source circuit for an analog to digital converter as defined in claim 64 wherein said reference impedance device comprises a variable resistor.

67. (Currently Amended) A voltage source adapted for use in an analog to digital converter comprising:

a switched capacitor circuit including a sample and hold portion and an amplifier portion, said sample and hold portion having an input coupled to a programmable current source and an output coupled to an input of said amplifier portion, said sample and hold portion including a switching device for sampling an input voltage and a capacitive device for holding the input ~~voltage~~ voltage.

68. (previously presented) A voltage source as defined in claim 67 wherein said amplifier portion further comprises an amplifier having first feedback path coupled from a first output to a first input of said amplifier.

69. (previously presented) A voltage source as defined in claim 68 further comprising a digital to analog converter having an output coupled to said sample and hold portion for providing said input voltage to said sample and hold portion.

70. (previously presented) A voltage source as defined in claim 69, wherein said digital to analog converter further comprises:

an adjustable current source;

an active load transistor; and

a reference resistor having a first terminal coupled to said adjustable current source and a second terminal coupled to said active load transistor, said reference resistor adapted to provide said input voltage between said first and second terminals in response to an output current produced by said adjustable current source.

71. (previously presented) A sampled voltage source comprising:

a reference resistor adapted to receive a programmed current to produce a programmed voltage;

a sampling circuit including a storage location and a crowbar switch, an input of said sampling circuit coupled across said reference resistor to sample said programmed voltage; and

an amplifier having an input coupled across an output of said sampling circuit, said amplifier including a feedback circuit coupled between said output of said amplifier and said input of said amplifier.

72. (previously presented) A sampled voltage source as defined in 71 wherein said storage location comprises a capacitors with a switch.

73. (previously presented) A sampled voltage source as defined in 72 wherein said amplifier having output impedance substantially lower than an impedance of said reference resistor.